#### 1. Data selection

- How many waves
- How many variables and sample size
- Data quality(missing value, data accuracy)
- Train test split

### 2. Data cleaning & preprocessing

- Duplicated samples
- Missing value imputation
- Data transformation
- Normalization

# 3. Imbalanced problem

- Up-sampling
- Down-sampling
- SMOTE(Synthetic Minority Over-sampling Technique)

### 4. Model comparison

- Classification ML model selection
- Model training(Cross-validation)
- Hyper-parameter tuning

#### 5. Model evaluation

- Evaluation metrics (ACC,AUC)
- unseen data prediction

#### 6. Feature importance

 List feature importance from tree-based model to create efficient data collection channels

## 7. Some Limitations might be concerned

- Insufficient data
- Inconsistency depression ratio among different age range(depression ratio might be higher in a certain age range than others)
- Improper risk factors (such as financial crisis, might only be relevant to adult populations but not for all the people who were 18 years and older)